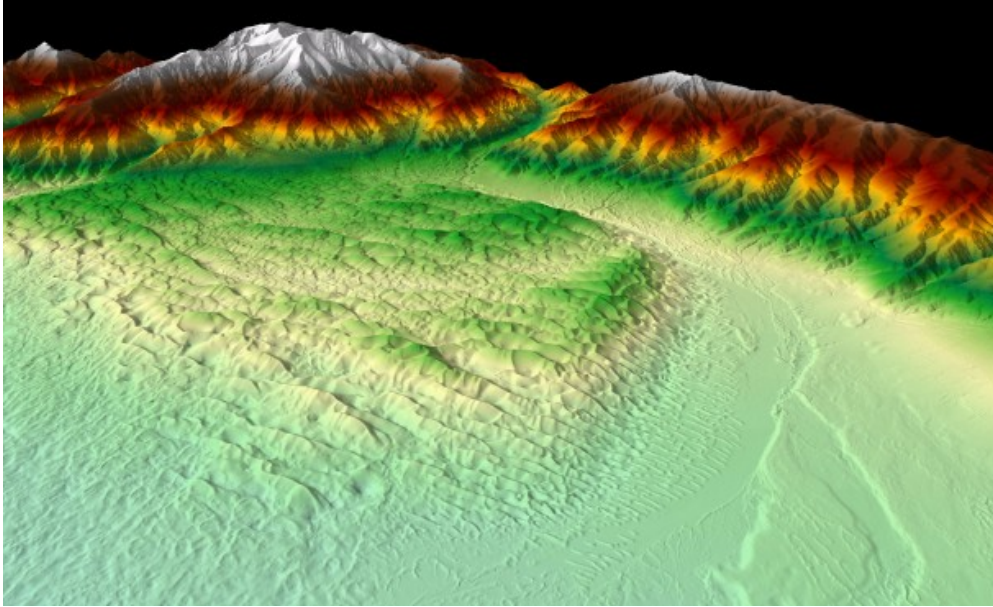


# Highlights from the USGS Lidar Science Innovation Workshop 2016

The USGS held a [Lidar Science Innovation Workshop](#) (internal link) from 8/2 to 8/4 in Fort Collins, CO.

## What is Lidar

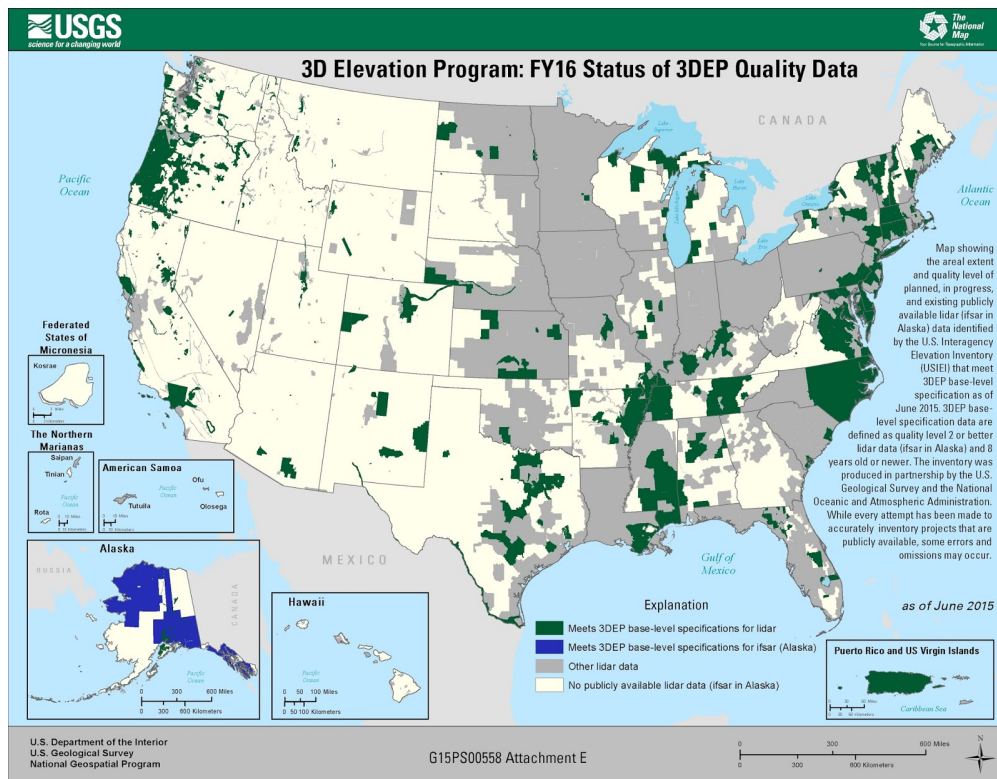
*Light Detection And Ranging*, a way to measure distance with a laser light, used to make high-resolution elevation maps. (At varying resolution but commonly at approximately 1 meter resolution (an elevation point every square meter) with +/-10 centimeter vertical resolution => much higher resolution than people were used to previously.)



*A bare-earth DEM describes details of the Great Sand Dunes National Park and Preserve in Colorado. (Credit: USGS) (Source: Stoker, 2016)*

## Highlights

- The workshop was a great opportunity for newcomers to get up to date with USGS elevation projects, use of Lidar, and new Lidar technologies. Meanwhile, Lidar experts could network, present their research, and find out how their colleagues in USGS are using Lidar.
- The 3D Elevation Program has an ambitious task ahead of it to map the nation in high-resolution Lidar over the next 8 years.
- Some participants wanted more training opportunities for working with Lidar data, while others “hoped to retire without ever downloading a point cloud” (meaning that they prefer the derived products).
- There was the desire for the formation of a Lidar Community of Practice.
- A nice app Poll Everywhere ([pollev.com](http://pollev.com)) was used very effectively to display audience opinion and ideas during the Innovation Panel and the Closing Plenary.
- Miscellaneous things learned:
  - Ele-hydro: hydrography from elevation
  - [Single-Photon and Geiger-Mode vs Linear-Mode Lidar](#)
  - [3DEP data dictionary](#) (don't use spatial metadata without it)
  - [DEM Geomorphology Tools](#)



A map shows the FY16 status of available 3DEP data. (Credit: USGS) ([Source: Stoker, 2016](#))

### What were the next steps

(from the Closing Plenary, [View Download](#), internal links)

- Know your [USGS National Map liaison](#), talk to them
- Use the [Seasketch](#) site to submit your "requirements" for Lidar collection
- Spread the word about Lidar and [3DEP](#)
- Build applications using Lidar
- Attend the [August 16 Mapping Innovation Kickoff](#) and [series](#) (internal links)

Another nice summary of the 3DEP program: [The 3D Elevation Program \(3DEP\): Learn the Details and Goals of this Ambitious USGS Project](#), *Earth Imaging Journal*, Stoker, Feb 2, 2016.

### More in-depth

- You can check out the data.gov entry for the [Lidar Point Cloud from the USGS National Map](#), in case you didn't believe this is big data (809,445 datasets in the collection...).
- The [National Enhanced Elevation Assessment \(NEEA\)](#) - approximately 800 pages including appendices, documenting business uses for elevation needs across 34 Federal agencies, agencies from all 50 States, selected local government and Tribal offices, and private and not-for profit organizations.

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